HERCULES

ORIGINAL USE AND MAINTENANCE MANUAL

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1 FOREWORD

IMPORTANT

BEFORE CARRYING OUT ANY OPERATION ON THE MACHINE, THE APPOINTED MACHINE OPERATORS AND TECHNICIANS SHOULD CAREFULLY READ THE INSTRUCTIONS CONTAINED IN THIS MANUAL AND COMPLY WITH THEM IN CARRYING OUT THEIR WORK.
SHOULD YOU HAVE ANY DOUBTS CONCERNING THE INSTRUCTIONS PROVIDED, PLEASE CONTACT OUR AFTER-SALES SERVICE FOR THE REQUIRED EXPLANATIONS.

1.1 GENERAL INFORMATION

This is the instruction manual for:

MACHINE TYPE: **PORTABLE THERMOPLASTIC FLAME SPRAY SYSTEM**
SERIES AND TYPE: **GLADIATOR SPARTACUS VHF OIL & GAS**

This user manual contains the main information regarding the machine storage, handling, installation, use, supervision, maintenance and disassembly.

This manual makes an integral part of your machine and should be kept with care until the machine dismantling at the end of its working life, in order to allow future reference and updating.
Should this copy of your user manual become damaged to the point that it can no longer be used, another copy may be requested from:

TECNO SUPPLY Division of IBIX SRL
Via La Viola, 4
48022 S. Maria in Fabriago (RA)
Tel. +39 0545.994589
Fax. +39 0545.994567
E-mail: info@tecnosupply.com
Web: www.tecnosupply.com

by specifying the machine type, serial number or job number indicated on the machine data plate.

This manual refers to the machine condition at the time of its supply and may not be considered inadequate only because later updates have been introduced to reflect newly acquired experience. IBIX reserves the right to update its products and manuals without any obligation to inform the users of previously supplied machinery. However, courtesy notification of any proposed manual and/or machine updating can be expected.

Our Customer care service is, however, always available to supply on request any information regarding machine updates.
IBIX shall not be held responsible for any incorrect use of its supplied machines,
including:

a) incorrect use of the machine or use of the machine by poorly trained personnel;
b) use of the machine not in compliance with the applicable regulations;
c) incorrect installation;
d) incorrect power supply;
e) severely incorrect maintenance;
f) unauthorised intervention or modifications;
g) use of non-original spare parts or spare parts not suitable for the machine model concerned;
h) failure to comply with the supplied instructions, wholly or in part;
i) unexpected events.

1.2 GENERAL INFORMATION REGARDING MACHINE USE

- This manual has been prepared for the purpose of supplying the user with general information regarding the machine and with the maintenance directions judged necessary for its smooth operation.
- Before carrying out any machine installation, maintenance and repairing operations, thoroughly read this Manual as it contains all the necessary information to correctly use the machine by preventing accidents and injuries.
- The inspection and maintenance schedules prescribed by this manual should always be intended as the minimum required to guarantee the machine efficiency, safety and working life under normal operation conditions. However, constant supervision is recommended to be able to take immediate action in the event of a breakdown.
- All scheduled maintenance, checks and general cleaning should be carried out while the machine is stopped and disconnected from the air supply system.
- Warning: any machine modification or alteration not authorised by the machine manufacturer and any safety system modification or alteration shall cancel any manufacturer's guarantee and safety liabilities.

1.3 GENERAL PRECAUTIONS REGARDING MACHINE USE

The following recommendations are part of the normal behaviour that machine workers should adopt during work. Therefore, when designing and building the machines, the machine manufacturer has assumed that these recommendations are known to the machine workers. It is the user's responsibility to inform and train the machine workers to make sure that these recommendations become known to the personnel in charge of operating the flame spray system.

- Do not allow machine servicing by unauthorised personnel.
- DO NOT START THE MACHINE IF IT IS OUT OF ORDER.
- Before using the machine, make sure that any condition likely to affect safety has been removed as required.
- Make sure that all the machine guards and other protective devices are in place and that all the safety devices are present and in working order.
- Make sure that no unauthorised persons are within the work area.
- All the workers involved in any machine work phase must wear safety goggles, mask, headgear and gloves.
- Always comply with all the prescribed obligations, prohibitions and warnings during machine use.
- Never leave the machine unattended.
- Never use the machine under the influence of alcohol, drugs, medicines or extreme tiredness. A clear head is an essential precondition to operate the machine safely and effectively.

1.4 PICTOGRAMS RELATING TO THE "OPERATOR QUALIFICATION"

A.

B.

C.

A Operator: worker trained and authorised to operate the machine. In order to understand the instructions (text and pictures) supplied, the operator must have (or acquire through suitable education and training) the following characteristics:

- sufficiently good general and technical knowledge to read and understand the parts of the manual concerning his or her tasks and to correctly understand its drawings and diagrams;
- ability to read and understand symbols, pictograms and screen displays;
- knowledge of the main safety, accident prevention and technological rules;
- global knowledge of the machine and its setting on the job-site or in the factory to be able to tackle any emergency situation (ways out, fire-fighting systems etc...);
- specific knowledge of the machine field of application.

The operator's tasks are: machine starting up, machine operation and machine stop.

B Mechanical maintenance engineer: skilled technician able to operate the machine under normal operating conditions, to operate it with a hold-down control when the machine protective devices are not active, and to carry out any required adjustments, maintenance and repairs on mechanical parts.

C Manufacturer's technician: skilled technician made available by the manufacturer to carry out complex operations in special situations or according to agreements with the user. The tasks of a manufacturer's technician are of a mechanical nature.

1.5 PICTOGRAMS RELATING TO SAFETY

The safety pictograms used on the machine and/or in this manual are listed here below:

Note: any parts of text preceded by this symbol contain important information/prescriptions.

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Caution: any parts of text preceded by this symbol contain important information/prescriptions concerning safety in particular.

Obligation to wear safety shoes: the presence of this symbol means that the operator must wear protective footwear.

Obligation to wear safety gloves: the presence of this symbol means that the operator must wear protective gloves.

Obligation to wear safety goggles: the presence of this symbol means that the operator must wear safety goggles.

Obligation to wear a face mask: the presence of this symbol means that the operator must wear a protective mask.

Obligation to wear ear protectors: the presence of this symbol means that the operator must wear ear protectors against noise.

1.6 APPLICABLE STANDARDS

Here below is a non-exaustive list of the Standards that were taken into consideration when designing, manufacturing and testing the Gladiator Spartacus.

The Gladiator Spartacus has been manufactured in CONFORMITY with the essential requirements provided for by the Machine Directive 2006/42/CE.

Applied Standards:

EN 12100-1:	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN 12100-2:	Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles
EN 349:	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body
EN ISO 13857:	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
EN ISO 13849:	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
EN 983:	Safety of machinery - Safety requirements for fluid power systems and their components. Pneumatics
EN ISO 14121-1:	Safety of machinery - Risk assessment - Part 1: Principles
EN 559:	Gas welding equipment. Rubber hoses for welding, cutting and allied processes

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2 PRESENTATION

2.1 GENERAL INFORMATION

The **GLADIATOR** SPARTACUS has been designed and built to carry out flame spraying of thermoplastic powders applied by melting.
The machine must be connected to a source of compressed air and LPG (liquid propane gas).

Main Units and Parts:

1) Loading hopper

2) Front removable cover
- **2 a) Upper cover**

3) Powder flow and air pressure regulators

4) "Venturi" Unit

5) Machine cleaning service gun

6) Applicator Gun
- **6 a) Air supply hose**
- **6 b) Air + Powder supply hose**
- **6c) Vortex cooler**

7) Air Pressure regulator
- **7 a) Adjustment knob**
- **7 b) Pressure dial gauge**
- **7 c) Compressed air quick connect**
- **7 d) Air filter**
- **7 e) Condensate drainage valve**

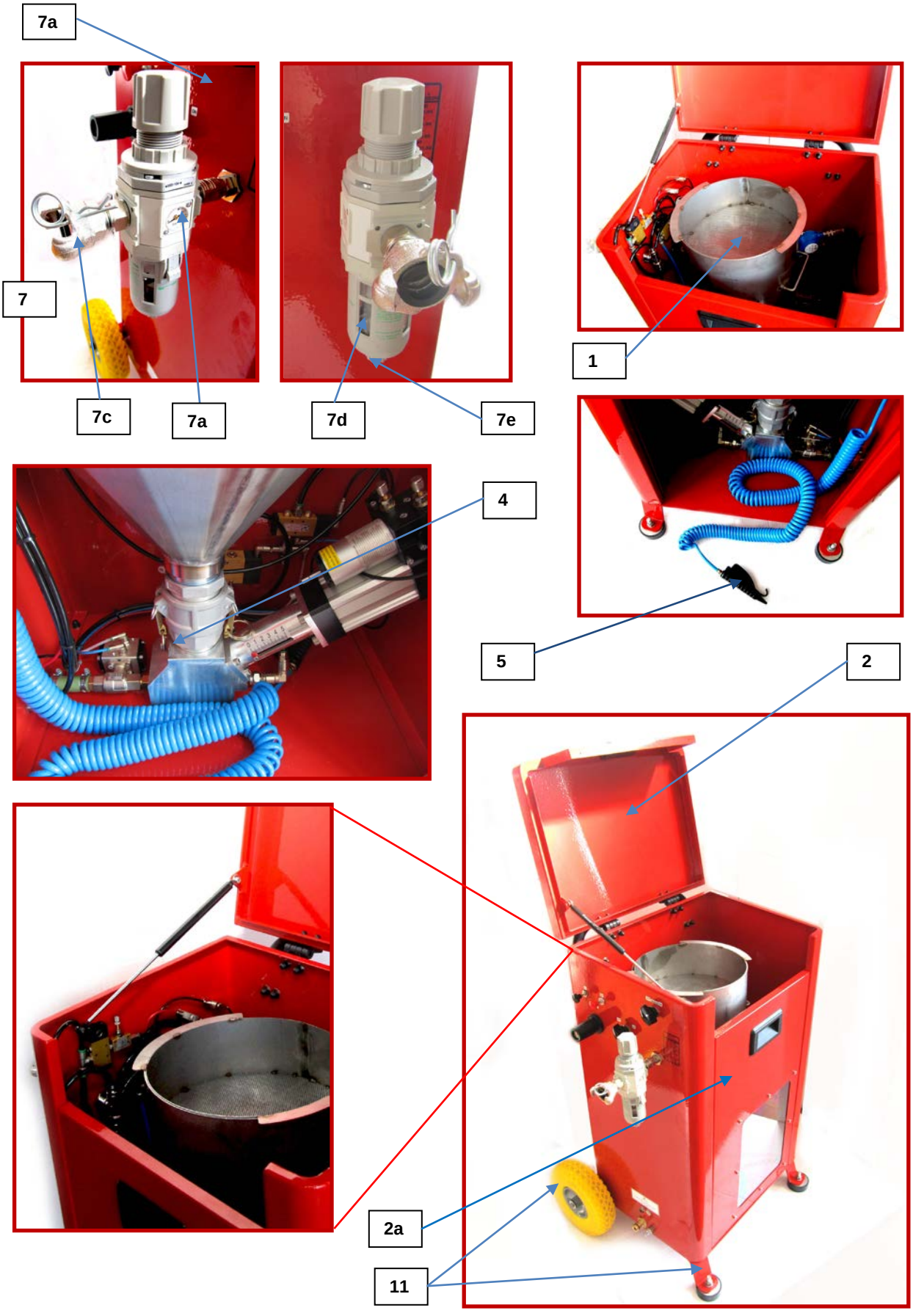
8) ON-OFF Main Switch

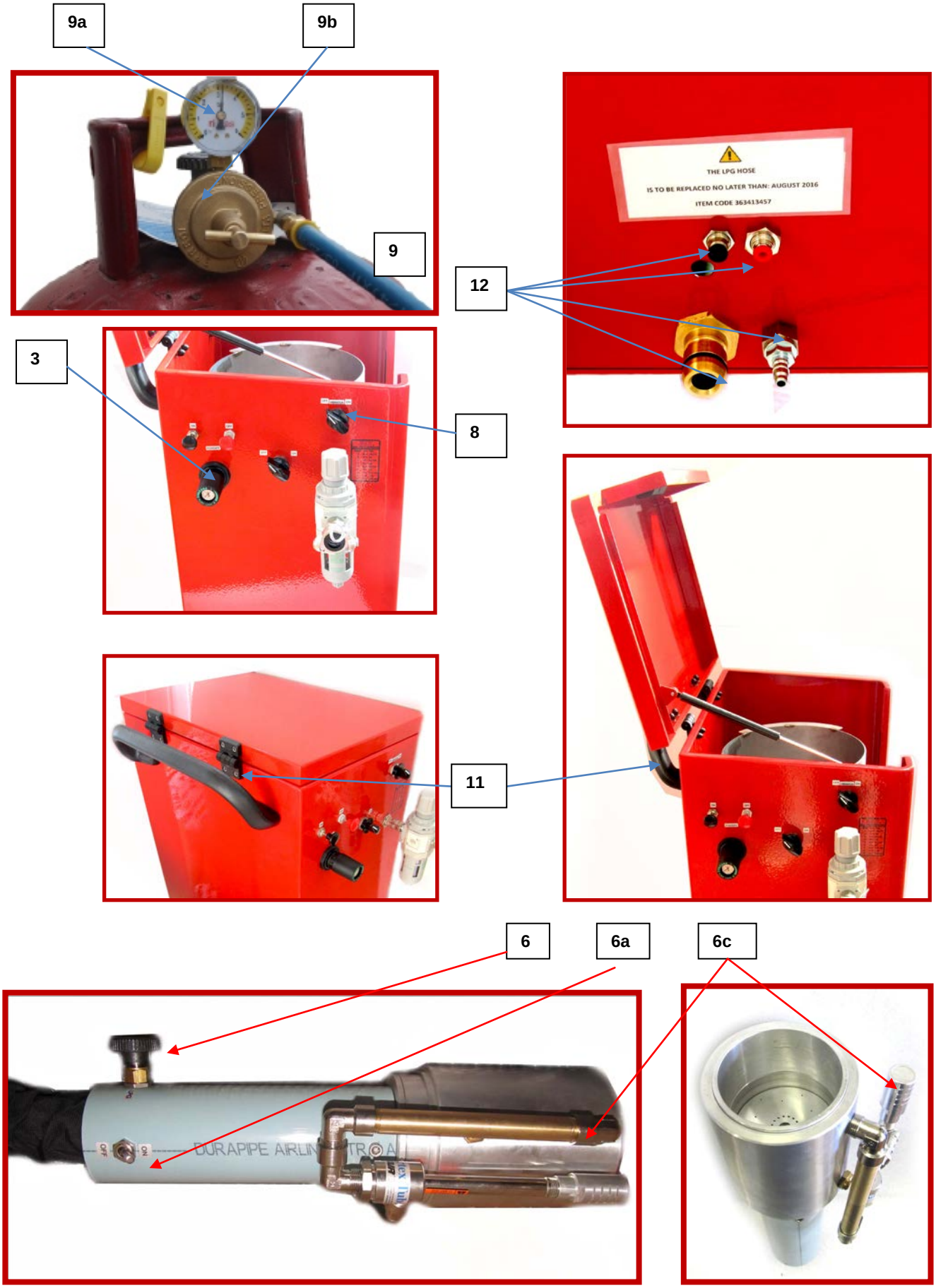
9) LPG pressure regulator connector
- **9 a) Pressure Gauge**
- **9 b) Opening and closing valve**

10) Transport Handle

11) Legs and wheels

12) Quick connect-disconnect connectors to speed up hose connecting


7a
7
7c
7a
7d
7e
1
4
5
2
2a
11


9a
9b
9
12
THE LPG HOSE
IS TO BE REPLACED NO LATER THAN: AUGUST 2016
ITEM CODE 363413457
3
8
11
6
6a
6c
OFF
ON

2.2 DATA PLATE AND DECLARATION OF CONFORMITY

Please exactly quote your machine **Model**, **Serial number** and **Year of Construction** to facilitate our After-Sales Service accurate and prompt response.
Always quote this information whenever you contact our After-Sales Service or whenever you order spare parts.
This information is shown on the data plate installed on your machine.
For no reason should the information indicated in the plate be altered.
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The figure shows the data plate on your machine and appearance.
Your machine serial number should be quoted whenever you contact the manufacturer for inquiries or to order spare parts.

2.3 CHARACTERISTICS

- It is the designer's duty to fix limits and apply more severe restrictions if needed regarding the presence of personnel and the working area.

- The machine should be operated by trained personnel aware of the machine characteristics and of the contents of this manual.

  - The machine is operated manually by one or two operator.

2.4 OPERATING PRINCIPLE

The working process can be outlined as follows:
Compressed air coming from the air compressor and LPG fed from the LPG bottle are conveyed to the applicator gun (their mixing is adjusted by air and gas regulators on the gun - see pos. 6h (air) and 6d (LPG) in paragraph 2.1).

In this Gladiator Spartacus Version the quantity of powder is regulated by means of two buttons connected to the pressure valve of the powder tank.

The powder is fed from the pressurized tank through the gun via a central hole. Powder feeding from the tank is controlled by a special "Venturi" device placed on the bottom of the powder tank).
Inside the gun air and gas are mixed and the coating powder is expelled and conveyed to the substrate to be coated. The flame is ignited by means of an external igniting device.

The applicator gun is available in three versions:

- ***Standard***
- ***High Flow***
- ***Small*** (suitable to make repairs and small coating jobs)

2.5 SPECIFICATIONS

Air working pressure:	6 bar (87 psi)
LPG working pressure:	2 ÷ 4 bar (29 ÷ 58 psi)
Powder tank capacity :	30 l (7.93 gal)
Installed machine max height:	1030 mm (40.55 in.)
Installed machine max width:	760 mm (29.92 in.)
Weight of the machine (with empty tank):	55 kg approx. (121 lbs)
weight (empty tank):	25 kg (55 lbs)
Weight of full tank only :	35 kg approx. (77 lbs)
Vibrations at the gun handle:	0,817 m/s^2

2.5.1 Information on the machine operating noise

The operators in charge of operating the machine must always wear hearing protectors while the machine is running (in addition to all the other mentioned personal protection devices).

The machine noise levels depend on the type of air compressor used and on the selectedworking pressure: away from the compressor, with the flame on and the compressed air jetstream, a sound pressure for the operator of 96.8 dB(A) has been measured.

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3 DANGERS AND PROTECTION

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3 DANGERS AND PROTECTION

3.1 NOT PERMITTED AND NOT RECOMMENDED USES

The Gladiator Spartacus should be used for the applications recommended by the manufacturer (See chapter 2).

In particular, the system should not be even partially used :

- without its protective guards and/or with cut-off, faulty or missing safety devices;
- when somebody is near the gun, in particular if he is in front of the gun;
- if it has not been correctly installed;
- If the machine has not been checked for any gas leaks along the hoses from the gas bottle and the applicator gun;
- in an explosive atmosphere or wherever there is a fire risk;
- in very confined areas with insufficient ventilation;
- to work materials with characteristics different from the specified ones;
- in dangerous conditions or in the event of machine malfunction;
- for uses not recommended for the machine or by untrained personnel;
- for uses against the applicable standards;
- in case of severely inadequate maintenance;
- after carrying out unauthorised modifications or repairs;
- in total or partial disregard of the given instructions.

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IMPORTANT

Any exceptions to the above recommendations should be authorised in writing by IBIX.

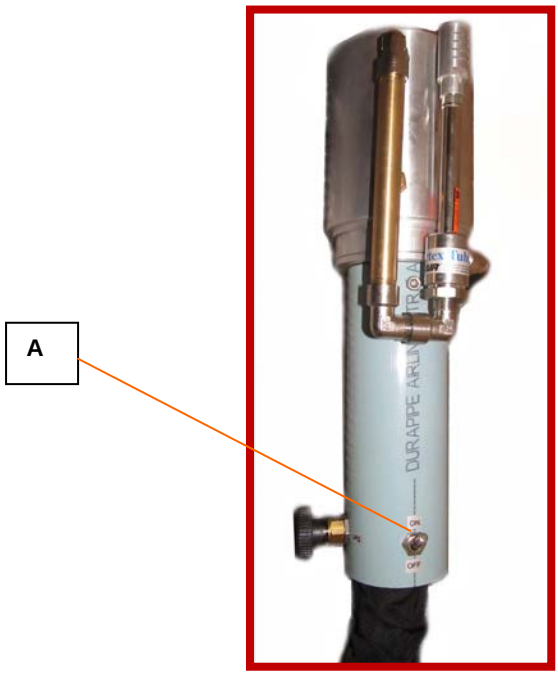
Any modifications not authorised by the Manufacturer, and likely to alter the machine operation by modifying the possible risks and/or creating new ones, shall be the responsibility of whoever carries out such modifications.
Any modifications carried out without the manufacturer's authorisation also imply the loss of validity of any form of guarantee issued by the manufacturer and of the statement of compliance according to the Machine Directive 2006/42/CE.

Observe the maintenance and inspection schedules applicable in the Country of use as far as LPG pipe and other part checks and replacements are concerned.

Only use type-approved material marked as prescribed by the Regulations and Standards in force.

3.1.1 Accident-preventing devices

The machine is equipped with the following safety devices:



A) Gun ON-OFF switch:

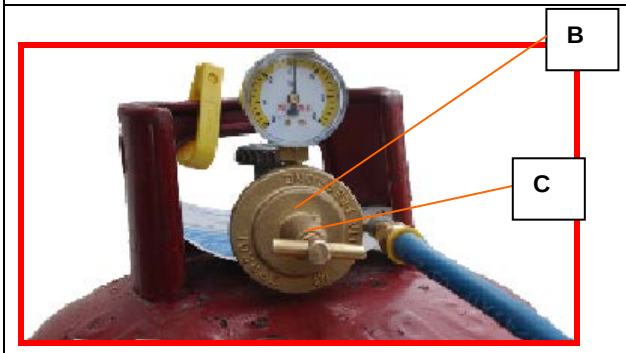
2-position (ON-OFF) lever selector switch to control

or prevent powder outlet.

Be careful as the gun might produce a flame also in the OFF position (controlled by the adjusters on the belt)!!!

B) Machine main air supply switch: 2 position (ON - OFF) control used to enable and disable the air supply to the whole machine.

Make sure that, even when the main air supply switch is in the OFF position, the gas valve is shut off to prevent any gas outflow from the gun!



C) Gas pressure adjustment valve

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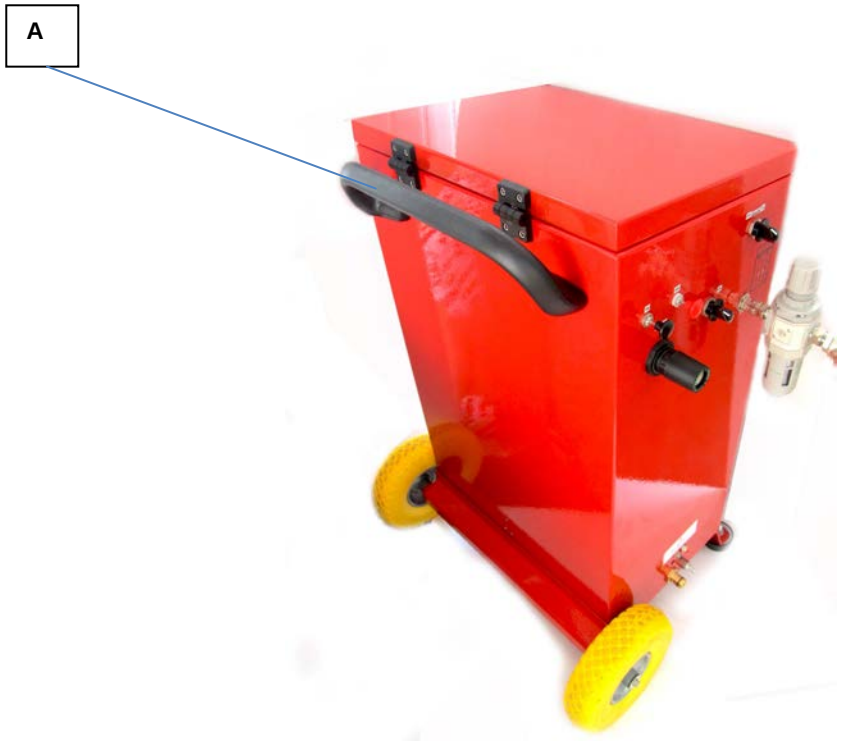
4 LIFTING, HANDLING AND STORAGE

4.1 LIFTING AND HANDLING

Machine lifting and handling must be carried out by taking precautions to prevent falls or overturning.

The machine has been fitted with special wheels to allow simple, safe handling. Move the machine by holding it by its special handle (A).

BEFORE MOVING THE MACHINE ON ITS WHEELS, ALWAYS MAKE SURE THAT THE MACHINE IS DISCONNECTED FROM ANY OF ITS SUPPLY SYSTEMS AND THAT THE BUNDLE OF HOSES HAS BEEN COILED UP AND SAFELY ANCHORED TO THE MACHINE MACHINE OR THAT THE HOSES HAVE BEEN DISCONNECTED.
IT IS ABSOLUTELY FORBIDDEN TO DRAG THE BUNDLE OF HOSES ON THE FLOOR OR GROUND DURING HANDLING.



The machine is purchased by the Customer contained in its special packaging (carton).
As the machine total weight exceeds 25 Kg (55 lbs), by the terms of the Law Decree 81/08 , the machine must be manually handled either by several operators if lifting is required, or by a single operator if the handle and wheels are used.

4.2 STORAGE

If the machine is not to be used for prolonged periods of time, we recommend to store it at a covered location sheltered from bad weather and aggressive chemicals.
The machine should be stored away with an empty tank and clean hoses and circuit. Make sure that the condensate preventing filter cups and the pressure reducer do not still contain any liquid. Wrap the hoses in plastic sheeting to protect them against weathering.

The machine should be stored indoors at suitable temperature (-10 to 40°C ; 32°F to 104°F).

4.3 PACKAGING DISPOSAL AND SCRAPPING

To dispose of the packaging or to scrap the machine at the end of its production life comply with the applicable standards in the Country of machine use.

However, follow these general rules:
- any packaging materials should be collected separately and brought to special recycling bins;
- any metal parts contained in the machine must be removed and sent to a foundry for recycling.

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5 INSTALLATION

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5 INSTALLATION

IBIX are always up-to-date when it comes to industrial coating innovation. They have designed and produced ***Gladiator***, a portable system for thermoplastic powder flame spraying.

Gladiator is an innovative device allowing the coated items to be immediately used.

Among the system characteristics are Easy Repair and Touch-Up of the coating by simply re-melting the powder on the surface to repair or to treat.

Before starting to work, certain operations must be carried out to ensure that installation tasks are carried out correctly.

5.1 INSTALLATION AREA TO BE SET UP BY THE USER

Before starting to work the user should make sure that:

- there aren't any unauthorised persons within the selected work setting;
there aren't any obstacles hindering the installation work or making it unsafe.

ALWAYS ENSURE THAT THERE IS SUITABLE VENTILATION.
FOR INDOOR COATING, PROVIDE SUITABLE FORCED VENTILATION AND AIR EXTRACTION SYSTEMS.
ALSO ENSURE THAT THERE IS AN ADEQUATE AIR COOLING SYSTEM FOR THE OPERATOR'S COMFORT.
IN THE EVENT OF COATING INSIDE CLOSED TANKS, MAKE SURE THAT AIR IS CHANGED AT LEAST ONCE EVERY MINUTE.

5.2 WARNINGS AND RECOMMENDATIONS BEFORE STARTING UP

Before starting up the machine, check all the hoses and ensure that they are not clogged or leaking (take extra care with the LPG feeding hose).
All the components must be connected with their special hoses.

To check for any leaks in the hoses and fittings, turn on the main air and gas supplies and use the appropriate foam-type detection bottles.

LPG FEEDING HOSE MUST BE REPLACED EVERY TWO YEARS. IN ANY CASE, CHECK THE EXPIRY DATE ON THE MACHINE (see photo)

IF ANY LEAKS ARE FOUND, IMMEDIATELY CORRECT THE PROBLEM.
IT IS STRICTLY FORBIDDEN TO USE THE MACHINE IN THE PRESENCE OF LEAKING PIPES AND HOSES!!!

FAILURE TO COMPLY WITH THIS INSTRUCTION MAY SERIOUSLY ENDANGER THE HEALTH AND SAFETY OF THE PERSONS AND LOCATIONS INVOLVED.

5.3 UNPACKING

- Unpack the machine by cutting the adhesive tape and opening the carton flaps, then place the carton gently on the floor.

- Take the gas reservoir/adjuster with pressure gauge (to be later assembled) out of the carton and then extract the machine from the carton by holding it in a vertical position.

- Continue to unpack the machine and unwind the gun assembly/hose.

- Now lift the machine cover: you will find the pressure adjuster inside. Take it out, unpack it then install it by inserting it in the quick coupling provided on the machine side.

- Now take the air hose that you must have previously connected to the air compressor, and plug it into the pressure adjuster.

- Start the air flow by pulling up the knob and turning it until a pressure reading of approximately **6 bars (87 psi)** is obtained. Now lock the control knob by pushing it in.

- Take the gas regulator and install it by screwing it to the gas hose fitting; make sure the connection is tight.

- Now connect the gas hose to the propane gas bottle and tighten with a special tool.

- Now start propane gas delivery from the bottle and set the pressure to approximately 3 bars (43 psi).

Fill the feeding hopper with your required thermoplastic powder after checking that the powder has not been contaminated by external agents in order to prevent any possible Venturi valve clogging during equipment operation.

After completing hopper filling operations, adjust the air inlet pressure to 6 bars and the propane gas inlet pressure to max 2 - 3 bars (29-43 psi).

It is recommended, however, to carry out a preliminary test while the machine is empty.

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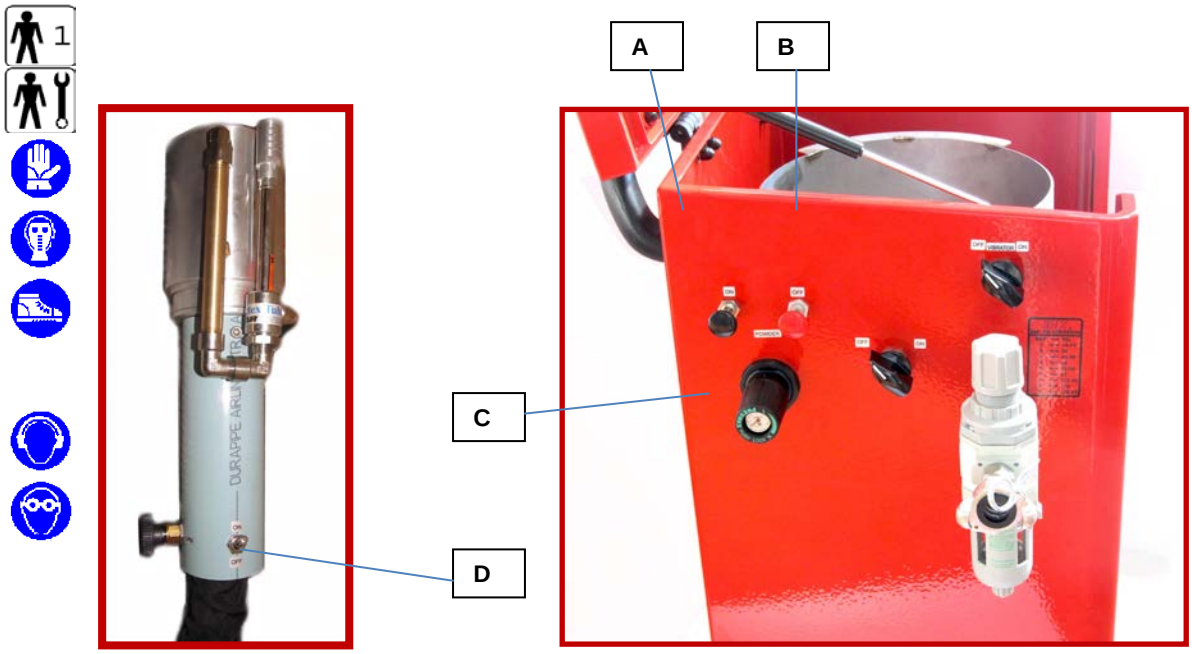
6 START-UP



<u>Powder flow pressure regulator (B)</u>: by turning the knob clockwise, the powder air flow pressure will increase, while by turning the knob anticlockwise, the powder air flow pressure the will decrease.

<u>Air regulator (A)</u>: by turning the knob clockwise, the air flow pressure will increase, while by turning the know anticlockwise, the air flow pressure will decrease.

Now turn on the main air switch (C) provided on the machine side by setting it to ON.

Turn the air knob (A) on the machine clockwise to start letting out a light air flow.
Point the gun away from yourself and from any objects or persons.

Now also let a light gas flow out of the gun, by turning the special gas adjuster knob on the gun, after slightly opening the air flow by turning the air knob (A).

Turn on the flame by using an external igniting device and adjust it by turning the air adjuster knob until a blue-tinged flame is obtained.

Now you can start heating up the substrate to be coated. Use a pyrometer to make sure that the temperature reaches the appropriate pre-heating values as required by the powder producer.

Now press ON on the powder ON-OFF switch and let powder out.

To adjust the amount of product, turn the product adjuster knob on the adjuster device.
After completing the application:
-Turn the product switch on the gun to OFF
-Turn off the gas adjuster knob on the gun
-Turn off and lock the air adjuster knob on the adjuster device

IT IS STRICTLY FORBIDDEN TO WORK WITHOUT THE REGULATORY PERSONAL PROTECTIVE EQUIPMENT.

IT IS STRICTLY FORBIDDEN TO POINT THE FLAME AGAINST PEOPLE, ANIMALS OR HEAT-SENSITIVE OBJECTS TO PREVENT ANY BURNING, FIRES OR DAMAGES.

6.1 GUN CHANGE-OVER

IT IS STRICTLY FORBIDDEN TO CHANGE THE GUNS BEFORE HAVING DISCONNECTED THE AIR SUPPLY AND THE GAS SUPPLY.

All the guns are supplied with their hoses and fittings, so that it very simple to change guns without problems

6.1.1 Disassembly

Disconnect all the hoses from the quick connectors on the machine

6.1.2 Assembly

Connect the the hoses to the machine thanks to the quick connectors

6.2 POWDER CHANGE-OVER

IT IS STRICTLY FORBIDDEN TO CHANGE THE POWDER BEFORE HAVING TURNED THE MACHINE OFF AND HAVING SHUT OFF THE GAS SUPPLY.

6.2.1 Disassembly

Wear the appropriate personal protective equipment provided for to protect yourself from the powder which might remain suspended.

Lift the machine cover and cause the machine front cover to slide until it is removed.

Use the service air gun to clean the machine

Now remove the hopper:

Release the 2 safety stops at the base of the hopper by positioning them horizontally.

Separate the filler from its connector.

You can now empty the hopper and clean it thoroughly by using the service air gun.

6.2.2 Assembly

First of all, restore the vibrator connection to the hopper and then, install the hopper by matching the filler to its connector.

To secure the hopper, reverse the order of the instructions given in 6.2.1.

You can now pour new product into the hopper as explained in point 5.5 5 and close the machine lid to carry out a new powder coating application.

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7 MAINTENANCE

BEFORE CARRYING OUT ANY MAINTENANCE, ALWAYS MAKE SURE THAT THE FLAME IS UNPLUGGED FROM THE AIR AND LPG SUPPLY SYSTEMS.

Carefully read this section of the manual before carrying out machine maintenance and adjustment operations; this will guarantee better safety conditions for the personnel in charge of maintenance operations and more reliable results.

Please follow our recommendations below during each assembly and disassembly phase.
For safety issues, please refer to chapter 1.
To ensure safe conditions during maintenance, remember that:

1 Machine maintenance should be exclusively carried out by qualified, specially authorised personnel.

2 Any operation should only be carried out after stopping the machine and disconnecting it from the air compressor and the LPG bottle.

3 Before starting the machine again, make sure that:
- after all replacement parts have been installed, all disassembled parts have been assembled again;
- any foreign objects (cloths, tools etc...) have been removed from the machine;
- all the safety devices have been correctly re-installed.

4 Before starting the machine again, make sure that nobody is within the machine work range.

5 Do not use tools, cleaning equipment etc. while the machine is in operation.

6 Never place any body parts, limbs or fingers in any machine openings or hollow parts while the machine is in operation.

7 Do not alter the machine frame in any way (by drilling holes in it, cutting it etc.) as this might damage mechanical parts which would affect the whole structure.

8 The machine should be regularly inspected and maintained to keep its technical, operating and safety conditions unaltered.

9 It is forbidden to carry out maintenance, cleaning and repairing operations on:
- a machine in operation;
- a machine not correctly positioned on the floor.

10 Before carrying out any maintenance, cleaning and repairing operation, remember to wear the prescribed personal protective equipment.

11 The protection and safety devices provided on the machine may only be removed for working purposes (i.e. to carry out maintenance and/or adjustments).

12 If whoever is in charge of carrying out maintenance has doubts as to the correct procedure to follow, even after reading the instructions contained in the manual, he or she should contact the Manufacturer or an authorised After-sales centre to obtain the required information.

A daily or weekly log of the machine operation details, observed faults, service carried out, spare

parts used and whatever else is worth taking note of should be kept.

7.1 TECHNICAL INFORMATION TO ENSURE GOOD MAINTENANCE

To ensure effective maintenance:
- only use original spare parts;
- comply with the (preventive and routine) maintenance schedule prescribed by the manual: the time recommended between one service and the next is the longest acceptable time. Therefore, it should not be exceeded but can be shortened.
- effective preventive maintenance requires constant machine monitoring and inspections.

All the gun components have been designed to allow fine tuning. During machine re-assembly after any maintenance operations, check that all the parts are reassembled correctly

7.2 GENERAL POST-MAINTENANCE TIPS

After carrying out machine maintenance and before restarting the machine, always:
- check that any parts that had been replaced and/or the tools used to carry out maintenance have been removed from the machine;

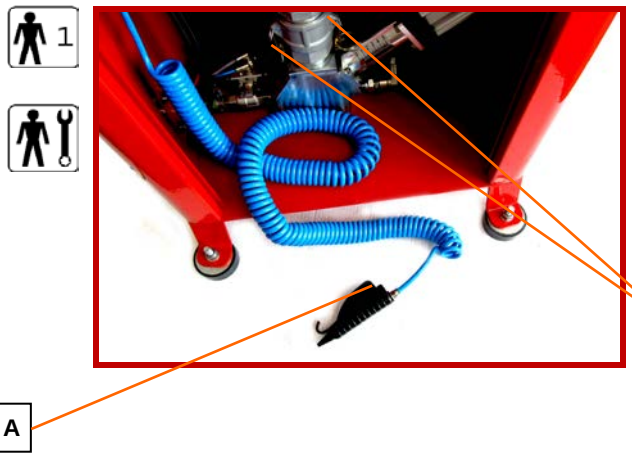
- check that all the guards and protective devices which may have been removed during maintenance are back in place, in working order and correctly positioned and adjusted;
- check that any pneumatic connections disconnected during maintenance have been reconnected;

- check the efficiency of the safety devices.

Only after maintenance completion and after carrying out all the required replacements may the normal machine operating conditions be restored.

7.3 ROUTINE MAINTENANCE

7.3. 1 Clearing the machine from powder and cleaning



A compressed air service gun **(A)** is provided inside the machine to carry out machine cleaning. After every machine use, blow the machine clean with compressed air: clean in particular the powder, gas and air delivery areas.

At every colour change-over and at the end of each working cycle, empty the system completely; to do so:

- Always turn the switch **B** to “OFF”

- Disconnect the vibrator air quick coupling **(D)**
- Release the Venturi system valve locking devices **(C)**

- Keep the powder collector tank readily available to store any excess powder.

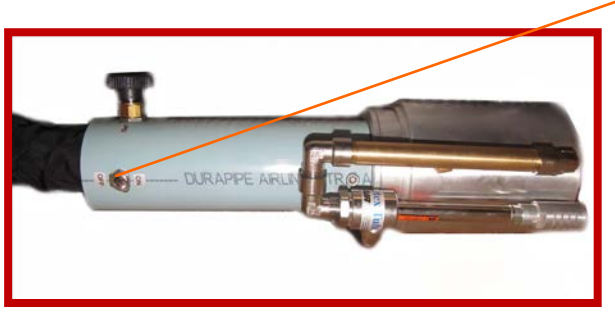
- Remove the hopper **(E)** and place the powder back in its special tank to prevent scattering it in the surrounding environment.

When emptying the powder, you may want to cover the floor with a sheet to collect any scattered powder!!

Turn the adjuster **F** to bring it to its opening position

Turn the adjuster **G** to bring it to its opening position

Turn the main switch **B** to its "**ON**" position



Turn the **H** switch on the gun lever to its "**ON**" position

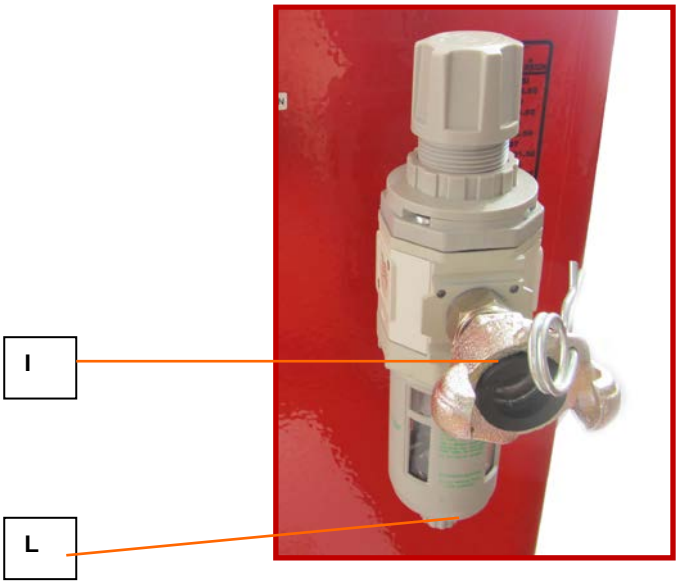
- Work the adjuster F gradually in small steps to obtain a well controlled outflow.

- Spray powder inside the hopper for approximately 1 minute, until the powder flow is visibly reduced to obtain thorough pipe cleaning.

Check and clean well the gun head and powder outlet before resuming work!!!

When the machine is started again, before pouring in new powder, pull the trigger to spray any residual powder out and keep it pressed for about 15 seconds, to prevent contamination and mixing the new powder with any old powder.

7.3.2 Weekly checks



Check for any condensate in the pressure reducer **I**.

- If needed, drain the reducer via the draining valve **L** provided at the bottom of the reducer and blow the internal filter clean with compressed air if required.

7.4 UNSCHEDULED MAINTENANCE

UNSCHEDULED MAINTENANCE SHOULD BE EXCLUSIVELY CARRIED OUT BY THE MANUFACTURER OR SKILLED TECHNICIANS OR BY OTHER PERSONNEL AUTHORISED BY THE MANUFACTURER.

- In normal operating conditions, the machine does not require any maintenance or servicing other than the routine maintenance recommended in the manual.
- Any other service is considered "unscheduled maintenance".
- Unscheduled maintenance operations must be carried out by personnel with an in-depth, specialised knowledge of the machine and all its parts. In no case may a routine maintenance engineer carry out unscheduled maintenance, either personally or through his/her appointed persons.
- In any case, the routine maintenance engineer is bound to promptly inform the Manufacturer that an event has occurred which makes unscheduled maintenance necessary, by indicating its cause and effects, to enable the Manufacturer to correctly evaluate the machine condition.

7.5 TROUBLESHOOTING

FAULT	POSSIBLE CAUSE	SOLUTION
No air supply to the gun	Compressor disconnected or turned off	Connect the compressor to the machine and turn it on
	Pressure reducer control turned fully off	Turn on the control to the required setting
	Air inlet regulator not correctly installed	Connect the regulator as required
	Air inlet obstructed	Check the whole air flow line, disconnect couplings and check air delivery
	The air tubes connected to the machine have been exchanged	Exchange the connected tubes
No powder delivery from the gun because no powder comes out of the hopper	The pin located between the Venturi unit and the hopper, controlling the powder feeding valve, is not correctly positioned.	Adjust the pin so that the valve ball lets powder through
	Powder jam in the Venturi unit	Remove the jam in the venturi unit using a suction device
		Control the pneumatic valve to open the powder control actuator; disconnect the powder feeding pipe and blow air into the coupling.
Flame cannot be ignited	LPG bottle empty	Replace
	Frozen bottle, frozen LPG	Defrost and keep the bottle at a sheltered location in ideal working temperature conditions if possible
Powder outlet clogged	Melted plastic preventing normal powder outlet	Remove any plastic and clean well

7.6 NOTES

NOTES

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